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L1: Entry 8 of 20

File: USPT

Dec 26, 2000

DOCUMENT-IDENTIFIER: US 6165713 A

TITLE: Composition and methods relating to DNA mismatch repair genes

Other Reference Publication (40):

Sean Baker et al., "Male Mice Defective in the DNA Mismatch Repair Gene PMS2 Exhibit Abnormal Chromosome Synapsis in Meiosis," Cell, Jul. 28, 1995, vol. 82, No. 2, pp. 309-319.

## WEST

### End of Result Set

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L3: Entry 1 of 1

File: USPT

Nov 14, 2000

US-PAT-NO: 6146894

DOCUMENT-IDENTIFIER: US 6146894 A

TITLE: Method for generating hypermutable organisms

DATE-ISSUED: November 14, 2000

INVENTOR-INFORMATION

NAME CITY STATE ZIP CCDE COUNTRY

Nicolaides; Nicholas Boothwyn PA Vogelstein; Bert Baltimore MD Kinzler; Kenneth W. BelAir MD

US-CL-CURRENT: 435/440; 435/325, 435/455

CLAIMS:

#### We claim:

- 1. A method of making a mammalian hypermutable cell, comprising the step of: introducing into a mammalian cell a polynucleotide comprising a dominant negative allele of the mismatch repair gene, PMS2, whereby the cell becomes hypermutable.
- 2. The method of claim 1 wherein the polynucleotide is introduced by transfection of a suspension of cells in vitro.
- 3. The method of claim 1 wherein the mismatch repair gene is human PMS2.
- 4. The method of claim 3 wherein the allele comprises a truncation mutation.
- 5. The method of claim 3 wherein the allele comprises a truncation mutation at codon 134 as shown in SEQ ID NO: 1.
- 6. The method of claim 5 wherein the truncation mutation is a thymidine at nucleotide 424 of wild-type PMS2 as shown in SEQ ID NO: 1.
- 7. A homogeneous composition of cultured, hypermutable, mammalian cells which comprise a dominant negative allele of the mismatch repair gene, PMS2.
- 8. The homogenous composition of claim 7 wherein the mismatch repair gene is human PMS2.
- 9. The homogeneous composition of claim 7 wherein the cells express a protein consisting of the first 133 amino acids of  $\underline{\text{human PMS2}}$  which functions as a dominant-negative protein.
- 10. The homogeneous composition of claim 7 wherein the cells express a protein consisting of the first 133 amino acids of PMS2 which functions as a dominant-negative protein.
- 11. A method of generating a mutation in a gene of interest comprising the steps of: growing a population of mammalian cells comprising the gene of interest and a dominant negative allele of the mismatch repair gene PMS2, wherein the cell is hypermutable; identifying a cell wherein the gene of interest harbors a mutation.

- 12. The method of claim 11 wherein the step of identifying comprises analyzing a nucleotide sequence of the gene of interest.
- 13. The method of claim 11 wherein the step of identifying comprises analyzing mRNA transcribed from the gene of interest.
- 14. The method of claim 11 wherein the step of identifying comprises analyzing a protein encoded by the gene of interest.
- 15. The method of claim 11 wherein the step of identifying comprises analyzing the phenotype of the gene of interest.
- 16. The method of claim 11 wherein the mammalian cells are made by the process of introducing a polynucleotide comprising a dominant negative allele of a mismatch repair gene into a mammalian cell, whereby the cell becomes hypermutable.
- 17. The method of claim 16 wherein the mismatch repair gene encodes a truncated PMS2.
- 18. The method of claim 16 wherein the mismatch repair gene encodes a truncated human PMS2.
- 19. The method of claim 16 wherein the step of identifying comprises analyzing a nucleotide sequence of the gene of interest.
- 20. The method of claim 16 wherein the step of identifying comprises analyzing mRNA transcribed from the gene of interest.
- 21. The method of claim 16 wherein the step of identifying comprises analyzing a protein encoded by the gene of interest.
- 22. The method of claim 16 wherein the step of identifying comprises analyzing the phenotype of the gene of interest.

# **End of Result Set**

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